

AMENDMENTS TO THE CLAIMS

In accordance with Rule 1.121, a complete claim listing is presented below, including appropriate status identifiers. Changes in the amended claims are shown by strikethrough for deleted material, and by underlining for added material.

1-20. (Cancelled)

21. (Previously presented) The fuel cell of claim 39, wherein the aqueous electrolyte has a pH of at most 3.

22. (Previously presented) The fuel cell of claim 39, wherein the aqueous electrolyte has a pH of at most 1.

23. (Previously presented) The fuel cell of claim 39, wherein the aqueous electrolyte comprises a member selected from the group consisting of: H₂SO₄, HNO₃, HClO₄, H₃PO₃, H₃PO₄, HCl, HBr, HCl, CH₃CO₂H, CCl₃CO₂H, CF₃CO₂H, and mixtures thereof.

24. (Previously presented) The fuel cell of claim 39, wherein the electrolyte comprises an aqueous solution of H₂SO₄.

25. (Currently amended) The fuel cell of claim 39, wherein the aqueous electrolyte has a pH of at ~~most~~ least 10.

26. (Withdrawn) The fuel cell of claim 39, wherein the aqueous electrolyte comprises a member selected from the group consisting of LiOH, NaOH, KOH, RbOH, CsOH, Mg(OH)₂, Ca(OH)₂, Sr(OH)₂, and Ba(OH)₂, and mixtures thereof.

27. (Withdrawn) The fuel cell of claim 39, wherein:
the fluorinated solvent is selected from the group consisting of
(C_nF_{2n+1})Si(OCH₃)₂; (C_nF_{2n+1})₂Si(OCH₃)₂; (C_nF_{2n+1})CH₂OC(O)CH₃;
CF₃[OCF₂CF₂]_nOCF₃; CF₃[OCF₂CF₂]_nOCF₂Cl; CF₃[OCF₂CF₂]_nOCF₂Br;

CF₃[OCF₂CF₂]_nCF₂H; CF₃[OCF₂CF₂]_nF; CF₃[OCF₂CF₂]_nCl; CF₃[OCF₂CF₂]_nBr;
CF₃[OCF₂CF₂]_nH; CF₃CF₂[OCF₂CF₂]_nF; CF₃CF₂[OCF₂CF₂]_nCl; CF₃CF₂[OCF₂CF₂]_nBr;
CF₃CF₂[OCF₂CF₂]_nH; CF₃CHF[OCF₂CF₂]_nF; CF₃CHF[OCF₂CF₂]_nCl;
CF₃CHF[OCF₂CF₂]_nBr; CF₃CHF[OCF₂CF₂]_nH; CF₃CHF[OCF₂CF(CF₃)]_nF;
(CF₃)₂CF(CF₂)_nF; (CF₃)₂CF(CF₂)_nCl; (CF₃)₂CFO(CF₂)_nBr; (CF₃)₂CFO(CF₂)_nH;
(CF₃)₂CFO(CF₂)_nF; (CF₃)₂CFO(CF₂)_nCl; (CF₃)₂CFO(CF₂)_nBr; (CF₃)₂CFO(CF₂)_nH; C_nF_{2n+2};
CF₃(CF₂)_nCl; CF₃(CF₂)_nHCF₃(CF₂)_nBr; N(C_nF_{2n+1})₃; C₆F_mH_{6-m}; C₆F_mCl_{6-m}; C₆F_mBr_{6-m};
C₆F_m(CF₃)_{6-m}; and mixtures thereof;

wherein n is 1 to 20; and

wherein m is 1 to 6.

28. (Previously presented) The fuel cell of claim 39, wherein the fluorinated solvent is selected from the group consisting of CF₃(CF₂)₇Br; (CF₃)₂CF(CF₂)₄Cl;
(CF₃)₂CFO(CF₂)₆F; perfluorobutyltetrahydrofuran; perfluoropropyltetrahydropyran;
C₈F₁₈; CF₃CFBrCF₂Br; (CF₃)₂CF(CF₂)₄Br; [(CF₃)₂CFOCF₂CF₂]₂; C₉F₂₀; C₆F₆;
CF₃CHF[OCF₂CF(CF₃)]₃F; (CF₃)₂CF(CF₂)₆Cl; C₁₀F₁₆; CF₃CHF[OCF₂CF(CF₃)]₄F;
perfluorotetrahydrodicyclopentadiene; [(CF₃)₂CFO(CF₂)₄]₂; perfluorodecalin;
CF₃CHF[OCF₂CF(CF₃)]₅F; perfluorodimethyladamantane; N(C₄F₉)₃;
perfluoromethyldecalin; C₆H₄(CF₃)₂; and CF₃CHF[OCF₂CF(CF₃)]₉F; and mixtures thereof.

29. (Previously presented) The fuel cell of claim 39, wherein the fluorinated solvent is perfluorodecaline.

30. (Previously presented) The fuel cell of claim 39, wherein the surfactant is selected from the group consisting of: F(CF₂CF₂)_y(CH₂CH₂O)_xH, wherein y is 1 to 10, and x is 0 to 25; ((F(CF₂CF₂)_yCH₂CH₂)_xP(O)(OH₄)_y, wherein x is 1 or 2, y is 1 or 2, x+y is 3, and z is 1 to 8; F(CF₂CF₂)_xCH₂CH₂SCH₂CH₂CO₂Li, wherein x is 1 to 10; F(CF₂CF₂)_xCH₂CH₂SO₃Y, wherein x is 1 to 10, and Y is H or NH₄; and mixtures thereof.

31. (Previously presented) The fuel cell of claim 39, wherein the surfactant is a mixture of $\text{CF}_3(\text{CF}_2)_5\text{CH}_2\text{CH}_2\text{SO}_3\text{H}$ and $\text{CF}_3(\text{CF}_2)_5\text{CH}_2\text{CH}_2\text{SO}_3\text{NH}_4$.
32. (Previously presented) The fuel cell of claim 39, wherein the volume-to-volume ratio of fluorinated solvent to aqueous electrolyte in the emulsion is from 1:24 to 24:1.
33. (Previously presented) The fuel cell of claim 39, wherein the volume-to-volume ratio of fluorinated solvent to aqueous electrolyte in the emulsion is from 3:24 to 12:24.
34. (Previously presented) The fuel cell of claim 39, wherein the volume-to-volume ratio of fluorinated solvent to aqueous electrolyte in the emulsion is from 1:6 to 5:7.
35. (Previously presented) The fuel cell of claim 39, wherein the volume-to-volume ratio of fluorinated solvent to aqueous electrolyte in the emulsion is from 2:9 to 4:9.
36. (Previously presented) The fuel cell of claim 39, wherein the amount of surfactant in the emulsion is from 0.07% to 3% of the total weight of the emulsion.
37. (Previously presented) The fuel cell of claim 39, wherein the amount of surfactant in the emulsion is from 0.125% to 2% of the total weight of the emulsion.
38. (Previously presented) The fuel cell of claim 39, wherein the amount of surfactant in the emulsion is from 0.5% to 1% of the total weight of the emulsion.

39. (Previously presented) A fuel cell for the generation of electricity, comprising:

- a) an anode;
- b) a cathode; and
- c) a composition in contact with at least one of the anode and the cathode comprising an emulsion comprising a fluorinated solvent, a surfactant and an aqueous electrolyte with a pH of at most 4 or at least 9.

40. (Previously presented) The fuel cell of claim 39, wherein the fuel cell is a fuel cell wherein the cathode and the anode are separated by a membrane.

41. (Previously presented) The fuel cell of claim 39, wherein the anode and the cathode are separated by a channel contiguous with at least a portion of each electrode; such that when a first liquid is contacted with the anode, a second liquid is contacted with the cathode, and the first and the second liquids flow through the channel, laminar flow is established in the first and the second liquids.

42. (Previously presented) The fuel cell of claim 39, wherein the composition in contact with the anode further comprises a fuel.

43. (Previously presented) The fuel cell of claim 39, wherein the composition in contact with the cathode further comprises oxygen.

44. (Previously presented) In a fuel cell comprising a) an anode and b) a cathode; the improvement comprising:
transporting a gas to at least one of the anode and the cathode by dissolving the gas in an emulsion comprising a fluorinated solvent, a surfactant and an aqueous electrolyte with a pH of at most 4 or at least 9; and
contacting the emulsion with at least one of the anode and the cathode.